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AUTHORITY

ago, d/a ltr, 29 apr 1980

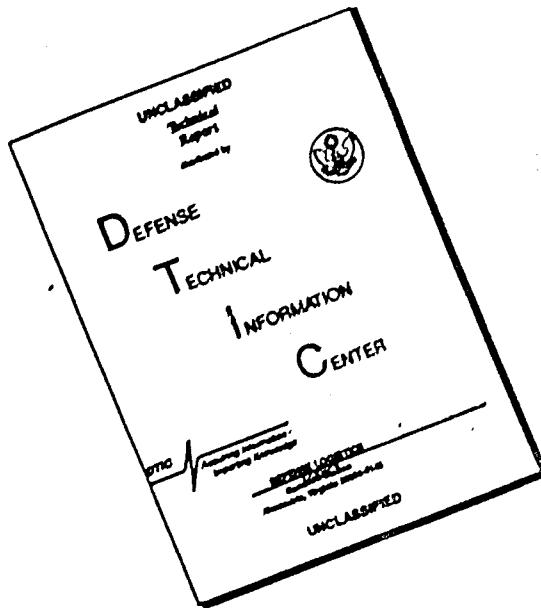
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IN REPLY REFER TO

AGDA (M) (18 Jan 71) FOR OT UT 703089

21 January 1971

SUBJECT: Operational Report - Lessons Learned, Headquarters, 20th Engineer Battalion, Period Ending 31 July 1970

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2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

1 Incl  
as

VERNE L. BOWERS  
Major General, USA  
Acting The Adjutant General

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DEPARTMENT OF THE ARMY  
Headquarters, 20th Engineer Battalion (Combat)  
APO San Francisco 96313

EGCB-OP

31 July 1970

SUBJECT: Operational Report - Lessons Learned, 20th Engineer Battalion (Combat), for the Period Ending 31 July 1970, RCS CSFOR-65

Commanding Officer  
937th Engr Gp (Cbt)  
APO 96226

Commanding General  
18th Engr Bde  
APO 96377

Commanding General  
US Army Vietnam  
ATTN: AVHCC (DST)  
APO 96558

Commander in Chief  
US Army Pacific  
ATTN: GPOT-DF  
APO 96558

Assistant Chief of Staff for Force Development  
Department of the Army  
ATTN: ACSFOR DA  
Washington, D.C. 20310

1. Operations: Significant Activities:

a. At the beginning of the reporting period, the Battalion Headquarters was located at Engineer Hill, Pleiku, RVN. A Company was located at Camp Radcliffe, An Khe, RVN, and was assigned the mission of completing the Enari-An Khe relocation of maintenance hangers. B Company (-) had the 1st and 2nd Platoons at Engineer Hill engaged in the construction of Bridges 19-33 and 19-34. Third Platoon of B Company was located at FSB Oasis constructing artillery gun pads. C Company was located at Weigt-Davis Industrial Complex. The 1st Platoon was operating the Soils Stabilization Plant to include the dredging operations at the barrel farm. The 2nd and 3rd Platoons of C Company were engaged in laying block base from the junction of CL-14S and LT-7B to Weigt-Davis, and upgrade of LT-7B south of Weigt-Davis to the Pass, respectively. D Company, also located at Weigt-Davis, was engaged in LOI construction on CL-14S. The 584th Engr Co (LE),

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with the 1st Platoon of the 15th Engineer Company (LE) attached, was located at Weigt-Davis. The entire unit was committed to LOC construction on QL-14S and LTL-7B through quarry-crusher operations and equipment support. The 538th Engineer Company (LC) relocated to Engineer Hill on 1 May 1970 to start a maintenance stand-down in preparation for Land Clearing Phase IV. The 509th Engineer Company (PB) with the attached 3rd Platoon of the 553rd Engineer Company (FB) was stationed at Engineer Hill providing haul assets and support for the LOC construction and Battalion projects. This was accomplished by immobilizing the bridging capabilities of the Company and using the trucks for hauling assets. The 585th Engineer Company (DT) was located at Weigt-Davis and engaged in hauling cold mix for QL-14S and LTL-7B.

b. The operation of the Battalion progressed well throughout the reporting period. A Company continued work on the maintenance hangers at Camp Radcliffe which were 71 percent complete at the beginning of the reporting period. B Company began curtailing work on Bridges 19-31 and 19-34 in preparation for combat support operations or the push of allied troops into Cambodia. D Company conducted 24 hour mine sweeps on the haul roads out of Weigt-Davis prior to the road crews moving out to the job site. One platoon of the 509th Engineer Company (PB) started perimeter upgrade of Engineer Hill. The remainder of the Battalion concentrated its efforts on the LOC construction of QL-14S and LTL-7B.

c. B Company began extensive combat support operations in the Duc Co and FSB Oasis areas. The projects included maintenance of QL-14S and 14T. On 8 May 1970 the second platoon moved to Duc Co and began the airfield upgrade while the 3rd Platoon continued the Oasis Gun Pads. The 538th Engineer Company (LC) remained on maintenance stand-down at Engineer Hill, while the remainder of the Battalion was committed to LOC construction on QL-14S and LTL-7B.

d. On 29 May 1970, A Company completed the relocation of the maintenance hangers at Camp Radcliffe. The 2nd Platoon of A Company began repair of Bridge 19-31 while the 1st and 3rd Platoons began preparing for the move of the Company from Engineer Hill to Camp Wilson. B Company completed the upgrade of the Duc Co Airfield and finished construction of the gun pads at the Oasis FSB. In the latter part of May, work was restarted on Bridges 19-33 and 19-34. On 30 May 1970, the 3rd Platoon of C Company relocated to Phu Thien to upgrade LTL-7B from ER 023020 to bridge site at ER 213058 (Bailey Bridge). Several M4T6 dry-spans were placed, one M-2 Bailey and existing bridges were repaired as necessary. On 21 May 1970, the 538th Engineer Company (LC) started Land Clearing Phase IV at An Nhe. Utilizing 19 dozers, they cleared an area of 190 acres the first day. Land Clearing continued through May with an average cut of 175 acres per day. The remainder of the Battalion continued the LOC construction on QL-14S and LTL-7B. On 24 May the Battalion finished the asphalt work on QL-14S from Dragon Mountain to the road junction with LTL-7B, a total distance of 25.4 km.

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The 3rd Platoon of the 15th Engineer Company (LE) (Attached) started maintenance stand-down at Weigt-Davis in preparation for their return to their parent unit, the 299th Engineer Battalion (Combat), located at Phu Tai, RVN. The 509th Engineer Company (PB), in addition to hauling for the LOC projects, finished the Engineer Hill Perimeter Upgrade in late May, 1970.

e. The 2nd Platoon of A Company continued the repair of Bridge 19-31 and completed the project on 13 June. The 2nd and 3rd Platoons of A Company began perimeter and company area upgrade at Camp Wilson in preparation for the move of the Battalion Headquarters from Engineer Hill. On 3 June the 1st Platoon of A Company began the upgrade of Yellowbird and the runway extension at Camp Holloway. On 2 June the 3rd Platoon of B Company moved men and equipment to FSB Athena in Kontum for drainage work. The 1st and 2nd Platoons continued work on Bridges 19-33 and 19-34, respectively. The 3rd Platoon of C Company, located at Phu Thien continued work on the upgrade of LTL-7B, while the 1st and 2nd Platoons located at Weigt-Davis continued the operation of the Soils Stabilization Plant and upgrade of LTL-7B from Weigt-Davis to the Pass. On 5 June the 538th Engineer Company (LC) moved to LZ Cannack to continue Land Clearing Phase IV. The remainder of the Battalion continued LOC construction on CL-14S from the road junction of LTL-7B to Phu Mon.

f. A Company continued the perimeter upgrade and compound construction throughout the reporting period at Camp Wilson. On 10 June the 3rd Platoon began repair of the Ben Het Airfield and completed the repair on 14 June. The 2nd Platoon began repairing potholes and shoulders of QL-14N on 8 June and discontinued work on 18 June due to higher commitments. The 3rd Platoon, just back from the repair of the airfield at Ben Het, began repair of potholes and shoulders on CL-19E. The 1st and 2nd Platoons were committed on 17 June to assist B Company in construction of the ARVN ASP located at Camp Holloway. Minesweeps from Artillery Hill to Plei Krong by A Company were a continuing project throughout the month of June and early July. On 11 June, the 3rd Platoon of B Company completed the project at FSB Aethena and began work on the Ammo Supply Point at Camp Holloway. Bridge 19-34 was completed by the second platoon on 8 June 1970, and the platoon efforts were moved to help the 1st Platoon finish Bridge 19-33. On 23 June the Headquarters element and the 2nd Platoon of C Company moved from Weigt-Davis to Camp Wilson. The 1st and 3rd Platoons continued working on their respective projects, the Soils Stabilization Plant, and LTL-7B upgrade in the vicinity of Phu Thien. On 26 June, D Company discontinued LOC construction on QL-14S. The Company had completed base course laydown from the road junction with LTL-7B to Phu Mon. Pot hole repair was also conducted on QL-14S south of Bridge 14-17. Decomposed granite had been used on the unpaved base course to improve the wearing surface and life of the road through the monsoon season. On 27 June, the 1st and 3rd Platoons moved to Sieo Kee to begin upgrade of TL-2E. The 2nd Platoon remained at Weigt-Davis to work on various area improvement projects and road maintenance of QL-14S. The crusher and quarry operations of the 584th Engineer Company (LE) continued through June.

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setting a weekly crushing record of 11,700 cu yds of 1 1/2" (-) rock. The 2nd Platoon began perimeter upgrade at Weigt-Davis on 15 June while elements of the 1st Platoon moved to Cheo Reo to assist D Company in the upgrade of TL-2E. On 15 June the 1st Platoon of the 15th Engineer Company (LE) attached returned to its parent unit at Phu Tai. The 585th Engineer Company (DT) was also transferred at this time to the 589th Engineer Battalion (Const) and no longer remained under "20th Engr Bn (Cbt)" control. On 16 June the 538th Engineer Company (LC) moved to a new road camp and began clearing areas along QL-19E.

g. On 3 July the 1st and 3rd Platoons of A Company completed their portion of the work on the Ammo Supply Point at Qui Nhon. The company was then committed to Engineer Hill Cleanup and perimeter upgrade. This project was discontinued on 11 July in order that construction could be started on the repair of Culvert 19-34.1 and the relocation of the Asphalt Plant from the CIA Yard to Weigt-Davis. B Company continued work on the Ammo Supply Point and was rapidly nearing completion. On 10 July, the company headquarters was moved from Engineer Hill to Camp Wilson. Bridge 19-33 and the Ammo Supply Point were completed on 14 July. The company was then committed to perimeter upgrade at Camp Wilson and the cleanup of Engineer Hill in preparation for turnover to the ARVN. On 15 July the 3rd Platoon of C Company completed the project at Phu Tai after having completed 10 miles of ditching, grading, and filling potholes. The 1st Platoon ceased operation of the Soils Stabilization Plant at Weigt-Davis in preparation for the platoon's move to Camp Wilson on 31 July. C Company was engaged in the cleanup of Engineer Hill throughout the remainder of July. On 11 July the 538th Engr Co (LC) was transferred to the 299th Engr Bn (Const) and no longer remained under the control of the 20th Engr Bn (Cbt). On 29 July the 1st and 3rd Platoons of D Company returned to Weigt-Davis having completed the upgrade of TL-2E. Ditches, culverts, and the installation of four Texas fords increased the trafficability of the road. On 2 July the 1st Platoon of the 589th Engr Co (PB) and 23 dump trucks were sent to Qui Nhon in operational support to the 84th Engineer Battalion (Const). The 2nd Platoon of the 584th Engr Co (LE) was sent to assist the 299th Engr Bn (Cbt) in the upgrade of Camp Radcliffe perimeter road. The rest of the company remained at Weigt-Davis and began a maintenance stand-down.

h. At the close of the reporting period the units of the Battalion were involved in various projects throughout the AO while the Headquarters element was busy in getting adjusted to the new quarters at Camp Wilson. A Company is located at Camp Wilson engaged in the repair of Culvert 19-34.1 and the relocation of the asphalt plant. B Company is also located at Camp Wilson and is engaged in BOQ construction at Camp Holloway as well as SEA-hut construction at Camp Wilson. The 2nd Platoon is preparing to move to Weigt-Davis to build a "T" headwall for the asphalt plant and extension of the retaining wall for the 75 TPH crusher. C Company is also located at Camp Wilson and is committed to replacing nine guard towers and intermediate fighting positions along the perimeter. D Company is located at Weigt-Davis and is engaged in site preparation and footer construction for the asphalt plant. The 584th

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Engr Co (LE) is also located at Weight-Davis and engaged in quarry/crusher operations as well as earthwork and other preparation for the asphalt plant and headwall extension. The 509th Engr Co (PB) (-) and the attached 3rd Platoon of the 553rd Engr Co (FB) are located at Camp Wilson providing haul assets for the Battalion. The 1st and 2nd Platoons are still located in Qui Nhon in support of the 84th Engineer Battalion (Const).

2. Lessons Learned: Commander's Observations, Evaluations, and Recommendations.

a. Personnel:

(1) Attachment of 553rd Engineer Company Platoon to 509th Engineer Company (PB)

(a) Observation: Administrative problems exist with the attached platoon of the 553rd Engineer Company (FB) because of being attached to one headquarters and assigned to another.

(b) Evaluation: Coordination is difficult because of the distance and communications from the 509th at Pleiku to the 553rd Engineer Company at Dong Ba Thin, and to the 864th Engineer Battalion at Nha Trang. Time lapse and lack of information down to the platoon causes unnecessary problems with regard to personnel actions, R & R, promotions, replacements, and extension.

(c) Recommendation: Recommend that 201 files and all other administrative actions be forwarded to and become the responsibility of the Battalion headquarters to which the unit is attached (the 20th Engr Bn (Cbt) in this case.

b. Intelligence:

(1) Providing Security for Duster

(a) Observation: A twin 40mm full-tracked duster was being used as job site security for an engineer platoon working on a single land road cleared 100 meters on each side.

(b) Evaluation: The duster was located beside the road but well away from the tree line to avoid being too close to the detonations of its own fire, even though this position did not afford the best field of fire. The Artillery FO on the site chose a position on high ground in the trees overlooking the entire operation. He observed two VC with a B-40 moving into position to fire on the duster and was able to drive them away by firing on them with a M-16.

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(c) Recommendation: The fire power of the duster made it a better target of opportunity than the troops in the open. Always put out ground security to protect your supporting security elements. The engineer platoon would have been much more vulnerable with the duster knocked out.

c. Operations:

(1) Use of Plastic to Cure Mortar in Headwalls

(a) Observation: Headwalls which were built during the monsoon season would not cure properly due to torrential rains washing away unset mortar or inability to keep the new mortar joints moist to prevent rapid curing.

(b) Evaluation: Mortar on headwalls built at the ASP, Camp Holloway washed away during rains before properly setting and others could not cure properly because of dry weather. A large piece of polyethylene plastic was placed over each headwall as soon as it was built. This kept direct rainfall off the mortar and allowed moisture to collect to provide a satisfactory cure.

(c) Recommendations: Place polyethylene plastic over any new mortar poured to prevent direct rainfall and provide a retainer for moisture to collect to provide a satisfactory cure.

(2) Splicing Steel Beams

(a) Observations: 24W94 beams can be spliced by welding to extend their effective length and still meet the requirements for load-bearing capability.

(b) Evaluation: Beams supplied for one span of Bridge 19-33 were found to be one foot short of the required length. It was determined that by using undamaged sections of the 24W94 beams from the old span, fish plates and splice plates could be fabricated and other pieces could be used as extensions for the new beams.

(c) Recommendations:

(1) If original issued beams cannot be utilized, welding provides a useful means of extending existing materials.

(2) To maintain effective load bearing capability and resistance to bending movement the cross sectional area of the splicing materials must be the same or greater than the material being spliced.

(3) The splice plate should be welded to the underside of the beam.

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(4) an 18" X 18" fish plate should be welded to both sides of the web.

(3) Using Rolling Stock for Expedient Parts

(a) Observation: Bearing plates, both expansion and static, may be fabricated from rolling stock when precast plates are not available.

(b) Evaluation: When the original bridge was destroyed some of the original bearing plates were rendered unserviceable. The determination was made to use rolling stock steel welded together to obtain the required thickness and retaining lips and studs could be welded into place for the respective plates.

(c) Recommendation: When using rolling stock for expedient parts, use a variety of studs to achieve the required thickness. Rolling stock may be used to fabricate many items which are not readily available.

(4) Improving a River Ford

(a) Observation: A swift flowing river with limited possible fordsites had to be crossed with an unimproved dozer road to be used for a limited time only. The best site available had a bed rock bottom only 18" deep except for a 5' deep channel approximately 10' wide against the near shore.

(b) Evaluation: The problem of filling the channel to an acceptable depth was solved easily by pushing the rocky soil into the stream with a dozer. The soil quickly washed away leaving the stone residue. This had only to be repeated until stone filled the channel, leaving a hard bottom ford that would be displaced only by unusually high water. The entire operation required only three hours with one dozer and operator.

(c) Recommendation: A desired ford can be quickly made by putting the force of the water to work, instead of wasting manhours by placing stone fill by hand.

(5) Air-Intakes for Crusher Engines

(a) Observation: During continued operation of the crushers in use at Weigt-Davis engine failure became a major cause of excessive down-time.

(b) Evaluations: Excessive dust generated by all five crusher units in operation induced more dust into the air intake systems of the crusher engines than the oil-bath air filters could suppress, which resulted in premature engine failure.

(c) Recommendations: That the air intake systems be piped into the 40-foot, 12-inch diameter hollow pipe light poles, which support the

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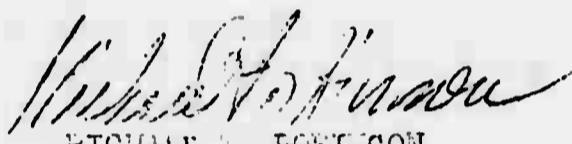
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(Combat), for the Period Ending 31 July 1970

lights for the night operation of the crushers. This method has reduced the dust intake and increased engine life.

- d. Organization: None.
- e. Training: None.
- f. Logistics: None.
- g. Communications: None.
- h. Material: None.
- i. Other: None.

1 Incl:  
20th Engr Bn (Cbt) Units.



RICHARD T. ROBINSON  
LTC, CIE  
Commanding

EGC-OP (31 Jul 70) 1st Ind

SUBJECT: Operational Report - Lessons Learned, 20th Engineer Battalion (Combat), for the Period Ending 31 July 1970, RCS CSFOR-65

DA, Headquarters, 937th Engineer Group (Combat), APO 96226, 25 August 1970

TO: Assistant Chief of Staff for Force Development, Department of the Army  
ATTN: ACSFOR-DA, Washington, D. C. 20310  
Commanding General, 18th Engineer Brigade, ATTN: AVEC-CG, APO 96377

1. The Operational Report - Lessons Learned from the 20th Engineer Battalion (Combat) is forwarded IAW 18th Engineer Brigade Regulation 525-15. Reporting period is 1 May through 31 July 1970.

2. This headquarters has reviewed paragraph 1 Operations: Significant Activities and considers it to be an accurate account of 20th Engr Battalion (Combat) activities for the reporting period.

3. This headquarters concurs with all recommendations in paragraph 2 of basic letter with the following comments:

a. Para 2. c. (2) Splicing Steel Beams: Continuous welding machines and sonic testers should be used to insure quality welds.

b. Para 2. c. (3) Using Rolling Stock: The words "rolling stock" should read "heavy steel plate". Expedient bearing plates must be carefully designed to insure proper load distribution on the top of an abutment or pier. TM 5-312, para 6-10 has detailed design instruction for bearing plates.

4. The contents of this indorsement have been brought to the attention of the 20th Engineer Battalion (Combat) for corrective action.

*James C. Donovan*  
JAMES C. DONOVAN  
COL, CE  
Commanding

AVBC-CC (31 July 1970) 2nd Ind

16 September 1970

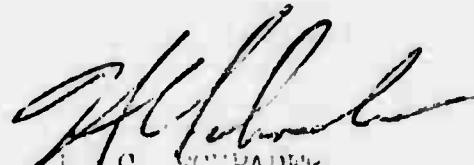
SUBJECT: Operational Report - Lessons Learned, 20th Engineer Battalion  
(Combat), Period ending 31 July 1970, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375

1. This headquarters has reviewed the Operational Report - Lessons Learned for the 20th Engineer Battalion (Combat), as indorsed by the 937th Engineer Group (Combat). The report is considered to be an accurate account of the Battalion's activities during the reporting period.

2. This headquarters concurs with the observations and recommendations of the Battalion and Group Commanders.



L. C. SCHRADER  
Brigadier General, USA  
Commanding

AVGCC-MO (31 Jul 70) 3rd Ind

SUBJECT: Operational Reports -- Lessons Learned for 20th Engineer Battalion  
(Combat), for the Period Ending 31 July 1970, RCS CSFOR-65 (R2)

DA, HQ, US Army Engineer Command Vietnam (Prov), APO 96491

TO: Commanding General, United States Army Vietnam, ATTN: AVHGCC-DST,  
APO 96375

Subject report is under review in this Headquarters. Comments for  
inclusion in the Headquarters, USARV endorsement to CINCUSARPAC will  
be forwarded to your Headquarters by separate cover.

FOR THE COMMANDER:



ROBERT E. SHEA  
CPT, AGC  
Assistant Adjutant

AVHDO-DO (31 Jul 70) 4th Ind

SUBJECT: Operational Report-Lessons Learned, 20th Engineer Battalion  
(Combat), for the Period Ending 31 July 1970, RCS CSFOR-65

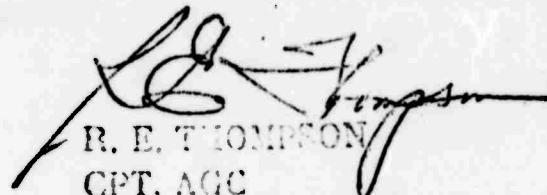
Headquarters, United States Army Vietnam, APO San Francisco 96375

TO: Commander in Chief, United States Army Pacific, ATTN: GPOP-DT,  
APO 96558

1. This Headquarters has reviewed the Operational Report-Lessons Learned  
for the quarterly period ending 31 July 1970 from Headquarters, 20th  
Engineer Battalion (Combat) and comments of indorsing headquarters.

2. Reference item concerning "Splicing Steel Beams," page 6, paragraph  
C(2). If no testing of the welded section is performed, a splice plate  
should be placed on the tension flange. These recommendations were  
included in a letter to the 18th Engineer Brigade which forwarded the  
results of USAECV(P), Engineer Division Project 1292 during June, 1970.  
Unit has been so advised. No action by USARPAC or DA is recommended.

FOR THE COMMANDER:



R. E. THOMPSON  
CPT, AGC  
Assistant Adjutant General

Cy furn:  
USAECV(P)  
20th Engr Bn

GPOP-DT (31 Jul 70) 5th Ind

SUBJECT: Operational Report-Lessons Learned, HQ 20th Engineer  
Battalion (Combat), for the Period Ending 31 July 1970,  
RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558 4 NOV 1970

TO: Assistant Chief of Staff for Force Development, Department  
of the Army, Washington, D. C. 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

*for General Decker*  
G. R. McLAUGHLIN *cc*  
COL, AGC  
Adjutant General

20th Engineer Battalion (Combat) Units  
31 July 1970

20th Engineer Battalion (Combat):

HHC  
A Company  
B Company  
C Company  
D Company

Attached:

509th Engineer Company (PB)  
Attached: 3rd Plt, 553rd Engineer Company (FB)  
584th Engineer Company (LE)

Incl 1

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Security Classification

**DOCUMENT CONTROL DATA - R & D**

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5. AUTHORISI (First name, middle initial, last name) <b>CO, 20th Engineer Battalion</b>		
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